Amendments to the Specification:

Please amend the specification as follows:

[0024] Vacuum source 110 can be configured to modify a pressure within the volume formed by housing 120 and moveable member 130. When the pressure within the volume formed by housing 120 and moveable member 130 decreases, housing 120 can frictionally engage moveable member 130, such that the movement of the moveable member ~~120~~ 130 is impeded.

[0026] Haptic feedback system 200 includes a vacuum source 210 that is configured to receive a signal from feedback system 250. Vacuum source 210 is coupled to housing 220. Housing 220 can be located adjacent to moveable member 230, as described above. A sensor 240 can detect a movement of moveable member ~~240~~ 230 and send a position signal to feedback system 250 based on the detected movement. Sensor 240 can include, for example, a linear optical encoder, a potentiometer, an optical sensor, or any other type of sensor that can measure the movement of the moveable member 230. Additionally, sensor 240 can measure, for example, a relative or an absolute movement of moveable member 230. Feedback system 250 can include a processor for processing the position signal output by sensor 240 and can be configured to output a haptic feedback signal to the vacuum source 210. When the vacuum source 210 decreases the pressure within the housing 220, housing 220 can frictionally engage moveable member 230 to a greater extent and impede its movement to a greater extent.

[0036] The interfaces between the tubular member 611 and vacuum source 610, the tubular member 611 and the housing 620, and the housing 620 and moveable member 630 need not be

configured to maintain a perfect vacuum. Leakage around the component interfaces can be compensated by the selective addition or removal or gasses from housing 620. To this end, a pressure sensor (not illustrated) can be coupled to the housing 620 such that a desired pressure is maintained. The pressure sensor can be configured to measure a pressure within the housing 620 and the vacuum source 610 can modify its output based on the measured pressure so that the pressure can be held substantially constant within the housing 620.

[0038] In the embodiment illustrated in FIG. 7, housing 620 can be held against moveable member ~~620~~ 630 by, for example, a gravitational force. In other embodiments, housing 620 can be biased against moveable member 630 using, for example, a leaf spring. Other biasing elements can be used to maintain the position of the housing 620 adjacent to the moveable member 630 such as, for example, helical springs, rigid members, or any other suitable biasing elements. When the pressure is lowered within the cavity, housing 620 will frictionally engage the moveable member 630 to a greater extent and can impede, at least partially, the rotational movement of moveable member 630. In addition to being adjacent to moveable member 630, housing 620 can be configured, for example, to remain in a substantially fixed position within the plane of motion of moveable member 630. An optional support structure (not shown) can be configured to keep housing 620 at a particular position within a plane parallel to the surface of the moveable member 630.

[0041] Vacuum source ~~711~~ 710 can be configured to receive a haptic feedback signal from a processor 770. The haptic feedback signal can be based on a position signal from sensor 760. Sensor 760 can include, for example, a linear optical encoder, a potentiometer, an optical sensor, or any other type of sensor that can measure the movement of the moveable member 730.

Additionally, sensor 760 can measure, for example, relative or an absolute movement of moveable member 730. In the embodiment illustrated in FIG. 8, moveable member 730 is a rotating disk that is configured to rotate about an axis, "A." Thus, sensor 760 can output a position signal to the processor 770 based on the rotation of a moveable member 730. Processor 770 can output a haptic feedback signal based on the position signal to the vacuum source 710. Vacuum source 710 can then modify the pressure within housing 720 to thereby increase, or decrease the amount of friction applied by the housing 720 to the moveable member 730.

[0050] FIG. 10 is a top view of a rotational member including a circular housing 822. Circular housing 822 can be positioned a radial distance "d" from the axis "A", as described with reference to FIG. [[7]] 8. As discussed above, the rim of the circular housing is configured to frictionally engage the moveable member 830. Thus, the local pressure applied by the housing 822 to the moveable member 830 would be the air pressure differential (P_A-δ) times the ratio of the area of the surface area of the rim to the surface area of the moveable member. Using this relationship, a haptic feedback system can be constructed for many different haptic feedback devices that utilize resistive haptic feedback.

[0052] Track ball 930 and housing 920 can be located within a base structure [[910]] 913, which is illustrated by a broken line. Base structure [[910]] 913 can include any form of track ball structure and can include additional components, such as, for example, buttons, knobs, or switches. Any known track ball system configuration can be used.

[0056] FIG. 12 is a side view of a haptic feedback system, according to yet another embodiment of the invention. The haptic feedback system illustrated in FIG. 12 can be used in, for example, a

surgical simulation system such as the system disclosed in U.S. patent application Ser. No. 09/237,969, entitled "Interface Device and Method for Interfacing Instruments to Medical Procedure Simulation Systems," filed on Jan. 27, 1999, now U.S. Patent No. 6,929,481, which is hereby incorporated by reference in its entirety.

[0063] In addition to being used in a medical procedure simulation system, the haptic feedback system 1000 illustrated in FIG. 12 can be used to provide haptic feedback in an endoscope. Endoscopes having haptic feedback are described generally in U.S. patent application Ser. No. 09/811,358 entitled "Method and Apparatus for Controlling Force For Manipulation of Medical Instruments" filed on Mar. 16, 2001, now U.S. Patent No. 6,817,973, which is hereby incorporated by reference in its entirety. In this embodiment of the invention, elongated member 1050 can include a working channel instrument, which can be for example, a catheter. Haptic feedback system 1000 can impede, at least partially, the movement of the elongated member 1050 before it exits the end of a working channel. This embodiment can facilitate easier changing of the working channel tools.

[0073] As computer mouse 1300 is moved across surface 1400, optical sensor 1330 can provide a position signal based on the movement of the computer mouse 1300. The position signal can be provided to, for example, the host computer or other processor (not shown). Based on this position signal, the haptic feedback signal can be provided from processor 1340 to vacuum source 1310, which in turn can adjust the pressure within the volume of housing 1320 such that the movement of computer mouse 1300 is impeded.